Getting Ready for Unit Five Date: _____

Classifying Polynomials

Definitions:

Variables- A letter or symbol used to represent a number (or unknown).

Terms- A number, a product of one or more variables, or the prudust of a number and one or more variables. Terms are separated by addition or subtraction in a polynomial expression.
EX:

Coefficient- The number by which a variable is multiplied, or the number part of the term.
EX:

Polynomial- Any algebraic expression

A **Monomial-** One term polynomial. **EX:**
B **Binomial-** Two term polynomial. **EX:**
C **Trinomial-** Three term polynomial. **EX:**

Degree of a Term- The sum of its exponents of its variables.
EX:

Degree of a Polynomial- The highest degree term in the expression
EX:

Descending Order- Polynomial terms are usually written in order from highest degree to lowest degree.
EX:

Constant Term- A number with no variables, the degree of this term is 0.
EX:

Linear Expression- An expression of the form Ax + By + C, where the degree is 1.

Quadratic Expression- An expression of the form $ax^2 + bx + c$, where the degree is 2.

Cubic Expression- An expression of the form $ax^3 + bx^2 + cx + d$, where the degree is 3.

EX: Fill in the following chart:

Expression	# of terms	Type of Polynomial	Coefficient of 1st term	Degree of Polynomial	Constant Term
$3x^2 - 4x + 2$					
$\frac{-3}{4}xy - 5$					
$y^3 - 6y$					
$\frac{x^2y^3}{5} + x - 3$					
$(2x^3)(5x)$					

<u>Adding and Subtracting Polynomials</u>

You can only add or subtract terms that have the same variable(s) raised to the same exponent(s). These terms are called Like Terms. You can collect like terms by adding or subtracting their coefficients, and keeping the variables the same.

EX: **Which of the following are like terms?**

A. **3x and -9x** **B.** $4x^2$ **and 4x** **C.** **6xy and -4yx**

D. $5x^3y^2 and 7x^2y^3$

EX: **Simplify the following by collecting like terms:**

A. $4x^2 + 2x - 3 - 8x - x^2 - 1 + 3x^2$ **B.** **(6xy - 9x +4) + (8 - 10x -2xy)**

C. $(3x^2 - 2x + 6) - (7x^2 - 9x + 4)$

Multiplying Two Monomials

To multiply two monomials, multiply the coefficients, then multiply the variables by adding the exponents of the same variables.

EX: A. $(3x^2y)(-2x^3y^{4)}$ **B.** $(3xyz)(-4x^2yz^3)\left(\frac{-1}{2}x^6y^2\right)$

Dividing Two Monomials

To divide monomials, divide the coefficients, then divide the variables by subtracting the exponents of the same variables.

EX: A. $\frac{-18x^3}{3x}$ **B.** $\frac{25x^3y^4z}{-5xy^4}$

Multiplying a Monomial by a Polynomial (distributive property)

To multiply a monomial by a polynomial, use the distributive property to multiply each term in the polynomial by the monomial.

EX A. **4(5x - 2)** **B.** $5x^2(6x-3)-2x^2(4-x)$

C. Find a simplified expression for the area. **x + 3**

2x